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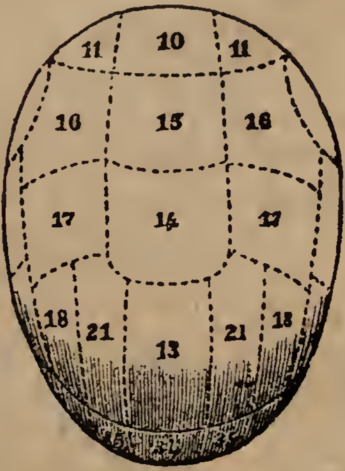
MACKENZIE'S EDUCATIONAL BOOKS
ELEMENTARY WORKS, CATECHISMS, &c.

PHRENOLOGY

EXPLAINED AND EXEMPLIFIED.

BY ENEAS MACKENZIE.



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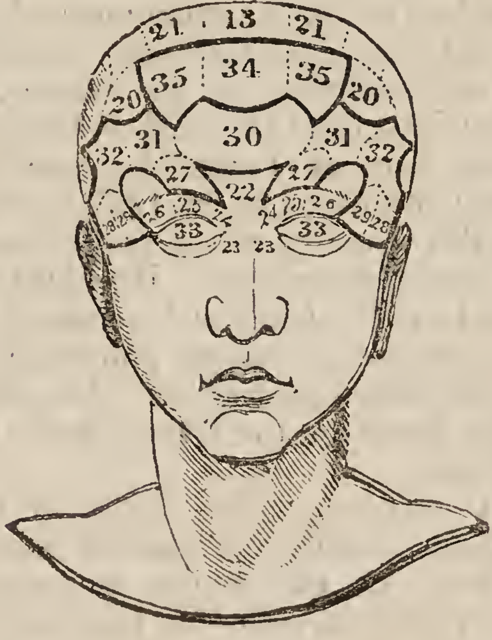
MACKENZIE'S

PHRENOLOGY.



Phrenology is a word derived from two Greek words φρὴν, *phren*, mind, and λόγος, *logos*, discourse.

The word Phrenology, as applied to the subject treated of in this work, means that our intellectual faculties, moral virtues, vicious propensities, animal emotions, and power of external sense or preception, may be know by particular protuberances on the skull, which point out and correspond with similar protuberances of the brain: that there is no actual division in the brain itself where these elevations or flattenings take place, yet by observation and comparison they are found to be the natural terminations of the organs of the said powers and faculties, and which exist in force and perfection correspondent to the size of the said organs. The faculties of the mind although known by the manifestation of the organs, yet as much depends upon the exercise of those faculties and education, the actions of a human being cannot positively be predicted.

Dr. Gall, a native of Tiefenbrunn, in Suabia, who was educated as a physician and followed that profession, was the discoverer and promulgator of the science of Phrenology. In 1796 he first lectured on the subject in Vienna; but by the despotic conduct of the Austrian monarch he was driven to seek a home in the capital of France, where he published his principal work illustrative of the science, and ardently advocated its doctrines, until his death in 1828, aged 71 years.

Dr. Spurzheim born at Longuich, near Treves, on the Moselle, the pupil and friend of Dr. Gall, in 1815 introduced the science into this country, where only an imperfect knowledge of it had previously existed. He added several organs to those advanced by Dr. Gall, and arranged the doctrines into a system of mental and moral philosophy. Dr. Spurzheim continued the distinguished and able champion of the science until his death in the United States of America, in 1832, aged 56 years.

Mr. George Combe, since the demise of Dr. Spurzheim, has been the most zealous and earnest professor of Phrenology. His work on the subject is argumentative and talented, and may justly be called the text book of the system; while the industry and ardour with which he teaches the science, and defends the doctrines, fully entitle him to the appellation of its apostle. His brother, the late Dr. Andrew Combe, has also aided Phrenology by demonstrations of its applications to insanity, health and infant education.

THE PRINCIPLES OF PHRENOLOGY.

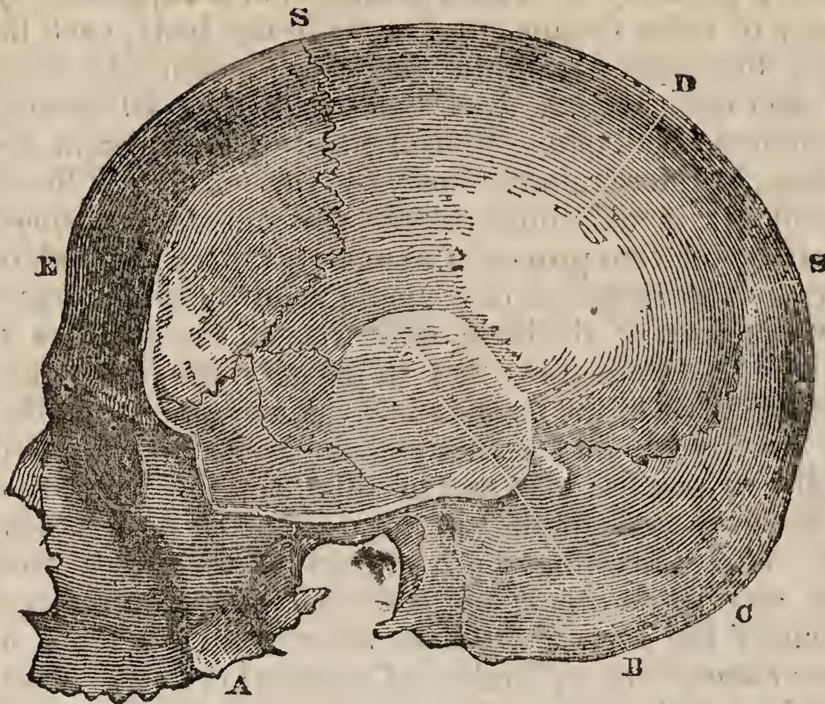
The principles of Phrenology are, that the brain is the organ of the mind; that the mind and body are so connected that certain states of the latter affect the former; that we are interested in knowing the qualities of the brain, but God alone can know the essence of mind or matter.

That a plurality of organs in the brain is supported by the analogy of other organs or systems in the body, each having special functions; as in the digestive system, the stomach, liver and other organs, each perform a duty all tending to the common result of digestion of food: by the different degrees in which, in different individuals, the various mental functions are evident: in childhood, before the mind is influenced by education, different propensities and capabilities are exhibited, hence the manifestation of a single faculty cannot depend on the whole mass of the brain, otherwise all the faculties would exist in an equal degree: that in insanity, generally, only one mental function of the brain is decayed, some are strengthened, some weakened, and others remain as formerly, proving a plurality of organs: also that peculiar faculties vary in power at different periods of life, all not increasing or decreasing at once. That dreaming shows a part of the mental faculties are at rest, while others are active and exercised through the medium of the parts of the brain appropriated to them, which further exemplifies a plurality of cerebral organs. That examination of the brains of persons remarkable for some propensity or talent, has demonstrated a constant correspondence in the development of a certain portion of the brain. That pain has been felt in an organ when the faculty with which it is connected has been greatly excited; and when a faculty has been morbidly manifested in life, after death disease has been found to have affected the corresponding part of the brain. Reasoning then from these facts, the existence in the brain of several organs for the manifestations of the different faculties of the mind is presumed to be an undeniable truth.

Dr. Gall enumerated thirty primitive mental faculties; to these Dr. Spurzheim added five, and divided the whole into 1st, MORAL or AFFECTIVE faculties or feelings, which he subdivided into *propensities,* including those creative only of desires or inclinations, and *sentiments,* including not only those which cause a desire to act, but are combined with an emotion or affection which is not mere propensity.

2ndly, INTELLECTUAL faculties, subdivided into *perceptive* and *reflective* faculties, and the *External senses.*

THE SKULL.



The skull is a hard case of bone which encloses and protects the brain. It consists of eight bones which are dovetailed together by what are called sutures.

A; the spheniod bone is at the base of the skull extending to the orbits of the eye and touches the frontal and temporal bones. It is in contact with a little of the middle lobes of the brain. Its form cannot be known during life.

B; the temporal bones, they contain and protect the organs of hearing.

C; the occipital bone; it forms the hole through which the spinal marrow passes.

D; the parietal bones; they join each other at the top of the head.

E; the frontal bone.

S. Shows the sutures.

The ethmoid bone does not come in contact with the brain.

Nature does not form the skull until the brain has been fully developed, when it appears to be moulded upon it, and thus is determined its size and form. The form, however, is not stationary as the brain varies from birth to old age so does the skull. The bone of the skull consists of two plates or layers, the one external the other internal, separated by a spongy substance placed unequally between them, this is called, technically, the diploe. In age as the nerves pine and the brain lessens, the skull generally thickens, the bones becomes light and spongy and the internal layer fills up the vacancy created. In confirmed insanity the brain generally decreases and the skull enlarges internally with solid, hard, heavy bone.

It may be safely affirmed as a fact, that in all healthy subjects, not beyond the middle period of life, the form of the greater part of the exterior of the head corresponds with that of the surface of the brain. The only parts in which it may, and generally does, differ are those over and in proximity to the eyebrows; the thickness of the superciliary ridge of the frontal bone is variable; and still more, in the adult brain, the cavities between the two plates of the frontal bone immediately above and by the sides of the root of the nose, called the frontal sinuses.

As a general observation it may be remarked that the skulls of the carnivorous animals or birds are large at the sides while those of the herbivorous are narrow.

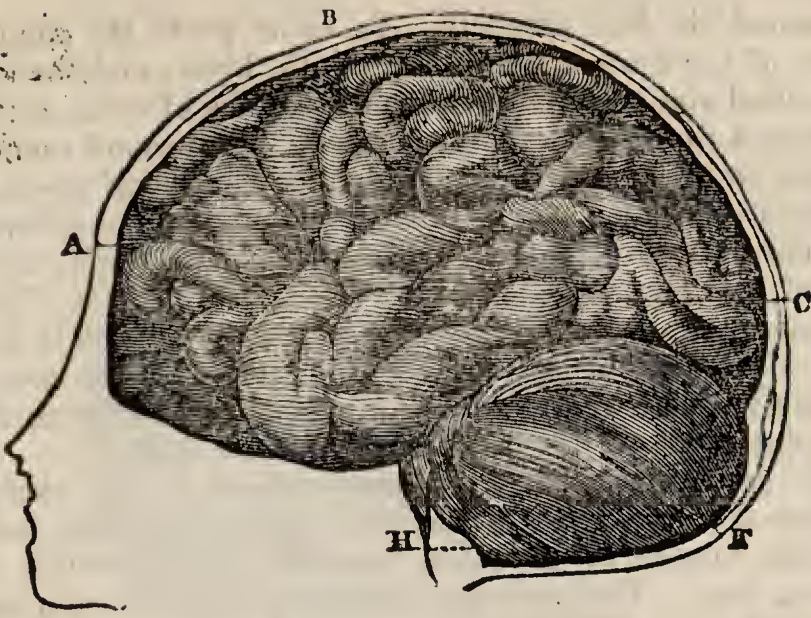
THE BRAIN, AND NERVOUS SYSTEM.

The brain is a soft pulpy mass of nervous matter which with its membranes, vessels and nerves fill the interior of the skull.

"The nervous system is divided into four parts. 1. The white threads called nerves. 2. Knots or masses of nervous matter situated along the course of the nerves called ganglions. 3. A long cord of nervous matter filling the cavity of the vertebral or spinal column, called the spinal cord. 4. A large mass of nervous matter now generally considered as a continuation and expansion of the spinal cord, called the brain. The spinal chord and brain constitute the two central masses of the nervous system, that is, the immediate seat of the functions peculiar to this system."—*Knight's Ency.*

Mr. George Combe says, by calling the whole of the nervous matter, filling the skull, brain, is confounding under one denomination, the brain properly so called, the nervous apparatus of the five external senses, the medulla oblongata, and the commencement of the spinal marrow; that these last parts should be considered separately, having an origin and functions different from those of the brain.

"The whole of the nervous system" says Mr. Combe, "results from two substances; one of a grey colour more or less varied and gelatinous or granulous; the other white and fibrous. The nerves or nervous filaments are constituted of white matter. 2dly. From the grey substance springs the nervous filaments, and the more that substance is abundant, the more of these fibres are produced. 3dly. The different nervous systems do not arise one from the other, but each takes its origin in its own proper mass of grey matter, and they, besides, differ essentially from each other. Apparatuses of communication exist everywhere, which place them in relation with each other. 4thly. All the nervous systems are capable of producing sensations in the brain, but each system receives and transmits a determinate sensation or irritation which is peculiar to it. 5thly. The functions of each nervous system are manifested only in proportion to the development of its parts, and the strength of the manifestation is, in general, in direct relationship to this development, or to speak more clearly, to the respective masses. Dr. Gall" continues Mr. Combe "was the first who set himself to examine each part in starting from the origin of its fibrous bundles, which he saw arising from the grey substance; and in following out their course to their final expansion. By this means he has been able to recognize the successive reinforcements furnished in their progress by their meeting with different masses of grey substance, and he has succeeded in unfolding the whole substance of the brain in the form of a membrane."



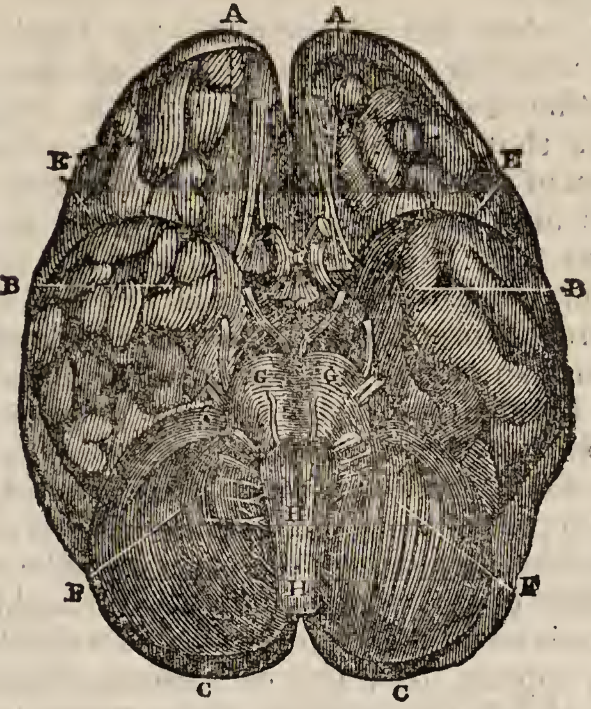
A.—Convolutions of the brain. Anterior lobe. B.—Superior lobe. C.—Posterior lobe. F.—The Cerebellum, or Little Brain. H.—The Medulla oblongata.

A B and C is the cerebrum or Proper Brain.

The external appearance of the brain is that of an irregular surface having risings and depressions termed convolutions laying in different directions and of various sizes and lengths. The whole is carefully enclosed in three membranous coverings; the external one is called the dura mater, or hard mother, which from the net work of its fibres is the thickest and strongest membrane of the whole body. The dura mater lines, and is fixed to the inner surface of the skull, it possesses numerous vessels laying between it and the bones, it also lubricates and supports several vessels, protects, divides, and upholds the divisions of the brain. From the fore to the back part of the head the dura mater extends in a scythe-like form, between the hemispheres of the brain, increasing in breadth as it proceeds backwards, this is called the falx cerebri, or superior longitudinal process. At the termination of the falx cerebri behind, it changes to a lateral direction, and divides the cerebrum from the cerebellum, this part is called tentorium, (a tent) because it supports the posterior lobes and prevents their pressure on the cerebellum; again branching from the middle, it divides the cerebellum, and is named the falx cerebelli. In some parts the component fibres of the dura mater separate into layers and the spaces are called sinuses, these perform the office of veins, returning the blood from the head to the neck. The second membrane of the brain is called tunica arachnoidea, which resembles a spider's web in delicacy of tissue. It adheres most firmly to, and covers entirely the convolutions of the brain, is transparent, and possesses no discoverable blood vessels. The pia mater is another exceedingly delicate membrane, and is covered with the nutrient arteries of the brain, which are most minutely divided, after which they penetrate between all the convolutions, and line every cavity of the brain.

The cerebral substance is composed of a pulp containing numerous minute round globules, while the pulp itself is likewise formed of globules, generally the 1-3200th of an inch in size. The nervous matter of the cerebrum is composed of two different substances, the outer called cineritious, from its ashy-grey colour, and sometimes cortical, from its surrounding the inner part of the brain as bark does trees. The inner substance is called white or medullary and is more abundant than the other, it is composed of fibres of which the other part is destitute. The medullary substance is connected with the animal principle, the medium through which the impression made by surrounding objects is conveyed, and the agent, by means of which, voluntary motions of the frame are effected; it consists of two kinds of adipose matter, the peculiar animal principle osmazome, together with albumen, phosphorus, a saline matter, consisting principally of the phosphates of lime, soda, and ammonia. The cineritious subtance is connected with the intellectual principle, it receives, registers, and compares the impressions made by the medullary substance, and directs and controls the working of the whole structure. In quadrupeds the medullary substance preponderates and the cineritious is deficient.

UNDER SURFACE OF THE BRAIN.



The brain has a superior and anterior mass denominated hemispheres, and an inferior and posterior portion called the cerebellum; the hemispheres are divided by the falx cerebri, and present an external surface of convolutions of varied size and protuberance. The clefts or furrows between the convolutions, penetrate the consistence of the brain to a depth varying from one inch to one inch and a-half. The size of each side of the brain does not exactly correspond, one being generally a little larger than another. Tranverse nervous fibres called commissures connect the corresponding parts of each side, which are thus brought into reciprocal action.

A.A.—The anterior lobes; they rest on the orbitar plates of the frontal bones.

E.E.—Deep clefts called the fissuræ Sylvius which separate the anterior lobes from

B.B.—The middle lobes, which are placed in the temporal fossæ formed by the sphenoid and temporal bones.

C.C.—The posterior lobes; they are separated from the middle lobes by a superficial excavation on the under surface of the posterior lobes, and are supported on the tentorium already described.

The cerebral lobes are admitted by the most celebrated anatomists as being the place "where all the sensations take a distinct form, and leave durable impressions;" Cuvier says that "comparative anatomy offers another confirmation of the constant proportion between the size of these lobes and the degree of intelligence in animals," "thus," says Mr. Combe, "admitting the influence of size of cerebral organs as distinctly as Dr. Gall himself."

F.F.—The Cerebellum is situated below the cerebrum, the latter overlaping it in man alone; it is composed of flattened laminæ or layers; its fissures are deep and not tortuous; in form elliptical; in the centre of its upper surface there is a rise, this part is called the vermiform process, and is considered to be the fundamental part of the organ, because in lower animals this part is always present, although the other parts be wanting. If either hemisphere of the cerebellum be divided, a thick mass of white substance is seen in the centre which as it divides into the several strata, appears like a tree or shrub and is called arbor vitæ, the tree of life, this leaf-like strata grows towards the circumference of the cerebellum, and is covered by a grey substance.

G.G.—The protuberantia annularis or pons Varolii, the outward surface is convex, it is joined to the cerebrum and to the cerebellum by two thick white cords. The pons Varolii connects the double parts of the cerebellum.

H.H.—The medulla oblongata "is the prolongation and condensation of the medullary matter of the brain, and it is the origin of that portion of the spinal cord which is devoted to organic life." In it, on dissection, are discovered four or five bands of white substance, interwoven like plaited straw; the form of these bands is thought to explain why an injury received on one side of the brain causes a disturbance of function on the opposite. In man the medulla oblongata is small, in animals large.

Nerves of the Brain.

1st. pair.—Those oblong hollows pointing towards the letters A.A. on the anterior lobes, are the olfactory, or nerves of smell proceeding to the nose.

2nd pair.—At the base of the olfactory nerves are two round like tubes, they are the optic nerves, or nerves of sight which proceed to form the retina of the eye.

3rd pair.—Branching seemingly from the bottom of the last named nerves, and converging towards the middle are the motores oculorum, they proceed to the muscles of the eyeball.

4th pair.—Springing up from underneath the sides of the pons Varolii, G.G., and proceeding in a line towards the last named nerves are the pathetici nerves, they proceed to the superior and inner muscles of the eye-ball.

5th pair.—Seen at the bottom of the last nerves are the trigeminal or trifacial nerves, they proceed to the orbits, the greater part of the face and jaw bones. This divides into three branches and is a nerve of sensation, motion, and taste, its divisions proceeds to all parts of the face, head, tongue, jaws, teeth, glands, and skin.

6th pair.—At the top of the medulla oblongata are two marks resembling horns in the engraving, pointing towards G.G. They are the abducentes nerves and proceed to the external muscles of the eye ball.

7th pair.—The next on the rounded corner of the medulla oblongata are the facial nerves or portio dura, they are the second branch of the seventh pair, they proceed to the external ear, neck, and face. The auditory nerves or portio mollis is the first branch of this pair they proceed through small holes to all the internal parts of the ear.

8th pair.—The principal branch of this pair laying next to the last described, is the glossopharyngeal nerves, they proceed to the tongue and upper part of the gullet. The next are the pneumo-gastric, or vocal nerves, they proceed to the gullet, wind-pipe, heart, lungs, and part of the stomach. The eighth pair is of importance to the voice, respiration, digestion, and action of the heart.

9th pair.—This is the lingual, or true motor nerves of the tongue, and are the principal nerves of speech.—The other more delicately marked nerves are spinal nerves, they proceed through a hole in the occipital bone to some muscles.

THE FUNCTIONS OF THE NERVES.

The nerves are fine tubular filaments of a peculiar substance, in diameter from 1-1500 to 1-4000th part of an inch, and enclosed in sheaths nearly parallel to each other; their ramifications extend over the whole body and sometimes resemble a kind of net work. Distributed in many parts along the nerves are small round masses of nervous matter called ganglia. All the nerves seem to spring from the brain or spinal chord; but the spinal chord, in which the nerves of the trunk appear to have their origin, differs from the brain in having the inner matter of a grey substance and the outer of a white.

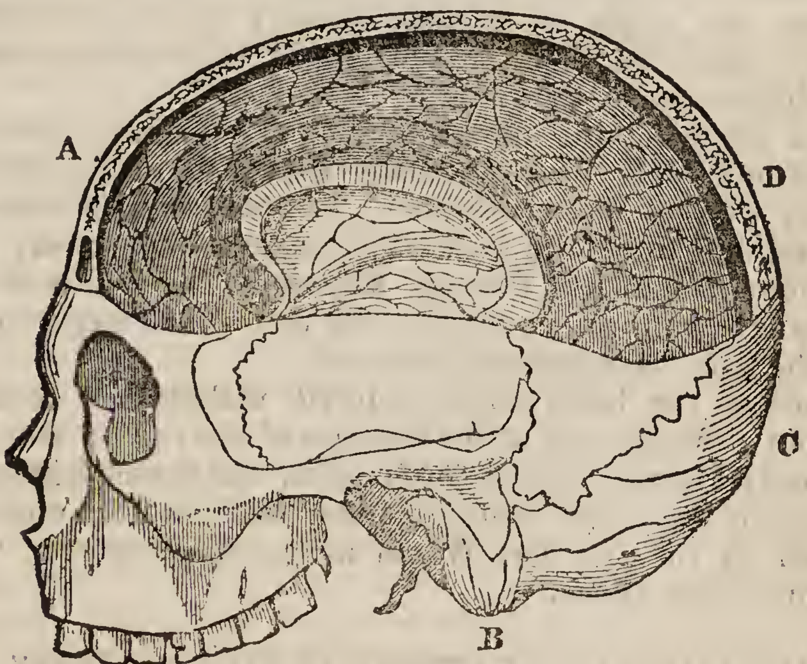
The nerves connected with the brain and spinal chord, are called the cerebro-spinal system, or nerves of animal life, and include all which are the medium of sensation and voluntary motion.

The ganglionic, or great sympathetic system are the nerves of organic life, they are connected with the brain and spinal chord, or the nerves proceeding from them, only by very small filaments, and have in their course numerous ganglia; they aid the actions of those parts devoted to nutritive functions—and are not influenced directly from the mind.

The cerebro-spinal nerves convey impressions to the brain when they are perceived as *sensations*; and convey the influence of the will from the brain to the muscles by which some *motion* is created. These messengers to and from the mind are distinctly separate nerves. Those conveying impressions are called *sensitive*, while those returning the effect of the sensations are called *motor*. Each nerve commences by fine roots which join into one trunk as a perfect nerve, those of sensation have a ganglion at their junction while those of motion are without, these nerves join in a common sheath and perform their separate functions. The sensitive and motor nerves which spring from and have their centre at the spinal chord rise into the brain and join it by the medulla oblongata. Thus the spinal chord may be viewed as consisting of a collection of nervous filaments having their centre in the brain. One most remarkable fact must be observed, which is, that the motor nerves communicate *only* with the anterior lobes of the brain, being that part in which the *will* resulting from the intellectual organs has its origin, while the sensative nerves have no communication with these organs, but with the middle and posterior lobes and the cerebellum where the organs of *feelings* are placed.

The almost incalculable rapidity with which sensations are conveyed to the brain through one line of nerves, and the reponse of will, giving motion, by another line of nerves, can only be compared to the electric fluid which will pass round our earth eleven and half a times in a second, or light which will pass eighteen times the circumference of the globe in a second. So wonderfully does the works of God surpass the powers, the conceptions of Man. "Some idea," says a writer in Knight's Ency. " may be formed of its rapidityof passage along the nerves to and from the brain, by a rough calculation, which the writer lately made, that when a person plays rapidly on the piano, upwards of 1000 distinct movements are performed within the minute: each of which has its time, place, and strength exactly ordered. At the same ime that the mind imparts this number of impressions to the muscles, it is receiving not less than 2000 impressions by each of three distinct senses, the eye, the ears and the touch, and perceives the most minute variation with each."

PART OF THE SKULL REMOVED.



A D shew the division of the two layers of the bone composing the skull by the diploe, which is distinctly seen and resembles the cells in a marrow bone.

C is the part where the cerebellum lies, the skull not been removed it is not seen.

B is the mastoid process, which lays behind the external opening of the ear, it contains cells for the purpose of fastening the sterno-mastoid muscle.

In the foregoing engraving the falx cerebri or falciform process of the dura mater is seen below the bone of the skull; its purpose seems to be to divide the brain so that when the head is in a reclining position it prevents the one part pressing upon the other.

The average weight of the brain of man is about 3½lbs; that of the ox hardly one pound. The weight of the brain of a human being is about 1-35th part of the weight of the body; of an ox the 800th; of a sheep the 750th; of a horse the 450th; of a dog the 120th part; of an eagle the 260th; of goose the 360th part; of a mouse and redbreast it approaches more the proportion of the human being, but it is composes principally of medullary matter, which is the origin of the nerves of sensation and of those of the spinal cord; the cineritious matter, the origin of intellect, is very small. In fish the brain is about the 2000 part of the bulk of the body; and the cineritious matter exceedingly little.

We conclude the description of the brain by remarking that in man only does the hinder part of the cerebrum completely overlap the cerebellum; in idiots this is often discovered not to be the case; in monkeys only a very small portion; descending through mammalia the posterior lobes of the cerebrum grow less, and the cerebellum larger until at last the latter is completely exposed.

Parts of the brain may be injured, withered or destroyed without affecting any of the faculties of the mind; this is accounted for by the duplication of organs, that is each hemisphere possessing the same faculties; this point has been most ably argued by the late Dr. Wigan in his work entitled "The Duality of the Brain."

ON THE APPLICATION OF PHRENOLOGY.

It is highly necessary before attempting to practice the science of Phrenology to attend particularly to several points before its elucidation on a subject can be considered perfect. In the first place the individuals must be healthy, and not beyond the middle period of life; and regard paid to the influence of the frontal sinus often extending over the organs numbered 22, 23, 24, and 25. This hollow between the inner and outer surfaces of the bone does not generally appear until after the age of twelve, it does not prevent the discovery of a deficiency of those organs, but of an enlargement. It may be plainly seen in the engraving at page 17.

Mr. Combe remarks "the student should bear in mind that the phrenologist does not compare general size and general power: a man may have a small head, taken in the aggregate, and yet a powerful intellect; but it will be found in him the anterior lobe or seat of the intellect is large, and that the deficiency lies in the organs of the propensities or sentiments, or of both. In such cases there will be intellectual vigour without much force of character. The circumstances which *modify* the effects of *size,* are constitution, health, exercise, excitement from without, and in some cases the mutual influence of the organs."

Brains differ in quality, therefore two brains of the same size and developments may differ in activity. The want of means to judge this circumstance is in part supplied by the *Temperaments* of the individual. Dr. Thomas states there to be four temperaments which affect the power and activity of the brain: the lymphatic—in which the action of the brain is slow and weak: the sanguine—vigorous and active: the bilious—energetic; the nervous—quick, energetic and powerful.

Education, and pursuits exercising particular organs, must be fully taking into account. The organs must be tested by the comparative size of the other organs in the same head. If the largest organs prevail in the region of the intellectual organs then the intellectual power preponderates; if in the moral, the moral powers, and if in the animal the animal powers. It should also be observed the effect of one organ on another, for instance, Hope large may be happily balanced by Cautiousness; while a combination of organs may lead to perfection, as Time and Tune. The length and breadth of an organ is the mode of judging—the size, not the protuberance. Mr. Combe says "if one organ be much developed and the neighbouring organ very little, the developed organ presents an elevation or protuberance; but if the neighbouring organs be developed in proportion, no protuberance can be perceived, and the surface is smooth."

THE GREAT DIVISIONS OF THE HEAD,

Phrenologists make three great divisions of the head in which are situated the intellectual, moral, and animal manifestations. To ascertain the size of each division a line is commenced at the bottom of the frontal bone, called the superorbitar plates to the junction of the frontal parietal and temporal bones lying between the orbit of the eye and the tip of the ear; from this point a line is drawn upwards to the most projecting point of the zygomatic arch, usually at the junction of the bones forming the arch and which is readily to be felt. The zygoma is the bone extending in the form of an arch from the temple to the cheek. In fact the head being placed in a parallel position and a line drawn from this prominent part will intersect the point where the junction of the bones before named take place. A person may appear to have a full ample forehead, but when this line is thus drawn it shows the part to be small. This part, just described, is the place of the anterior lobes of the brain and the seat of the intellectual faculties. Measuring from the first point in a line to the front of the head will decide the extent of the perceptive faculties, the upperpart is where the reflective are situated. Commencing a line again just below organ 13, Benevolence, and carrying it across the head to the back part, all above that line will show the extent of the moral faculties; and rearing a perpendicular line from the mastiod hole or process up to the last line shows the extent of the animal faculties, that is as to their power, for all beyond the first line and below the second are animal propensities.

ON EXAMINATION OF HEADS.

Upon proceeding to examine heads it must first be borne in mind that the protuberance of the zygomo, extending from the cheek bone to the temple; also the mastiod process below the ear; the spinous process of the occiput, underneath organ 2, and the ridge on the top of the skull; not being caused by the orm of the brain, in phrenology are disregarded. Particularly, too, it is necessary to remember that one organ must be compared relatively with others in the same head, not with those of persons with larger or smaller heads, and it is always better to select the largest developed organ to begin with. Regard is to be paid to those organs having influence over others that preponderate, or those preponderating in supplying the deficiency of others. The bodily development of temperament—education—and exercise of faculties,—must all have due weight in deciding on character. A large head may give power; a small, well developed head, intellect. Power is capability of feeling, perceiving, or thinking; activity is the exercise of power; thus the former, when circumstances in perilous times throw them to the surface of society, will execute great deeds and surpass all others; while the latter, will, in the usual circumstances of the world, display wit, intellect, refinement, skill, enterprise, erudition.

The size of the head is measured by compasses made for the purpose, having a scale. In Mr. Combe's work he gives a list of the measurement of the heads of twenty persons from the age of 25 to 50 years. The results were: from the occipital spine to the lower part of frontal sinus varying from 6½ to 8$\frac{2}{8}$ inches: from the occipital spine to the hollow of the ear, 3½ to 5 inches: from the hollow of the ear to the lower part of the frontal sinus 4½ to 5½ inches: from the hollow of the ear to the top of the head 5½ to 6½ inches: from a little below the tips of the ears across the head 5½ to 6½ inches. The measurements however he states are larger than the British generally, these twenty persons being all large.

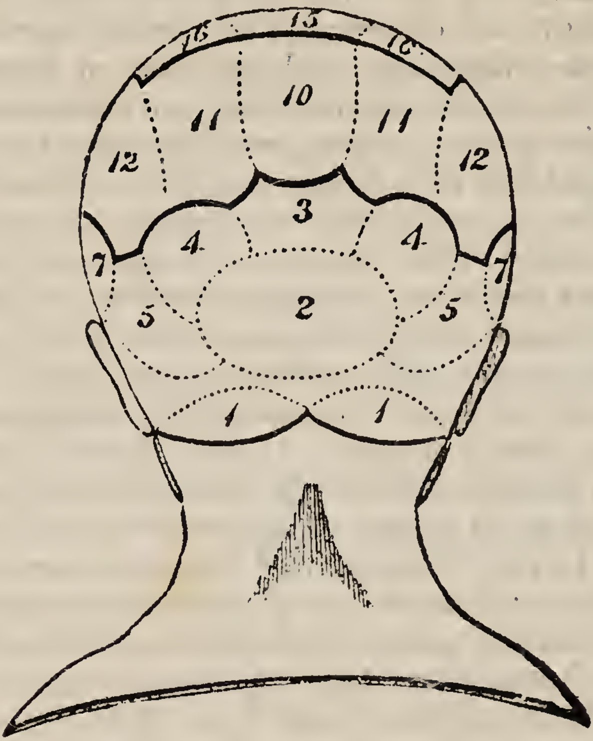
The proportions of the size of the faculties are given by Mr. Combe, thus:

1
2—Idiocy.
3
4—Very small.
5
6—Small.
7
8—Rather small.
9
10—Moderate.
11
12—Rather full.
13
14—Full.
15
16—Rather large.
17
18—Large.
19
20—Very large.

DIVISION OF FACULTIES.

Affective faculties, divided into *Propensities* and *Sentiments.*

Intellectual faculties, divided into *External senses*; *Perceptive* and *Reflective* faculties.



Propensities.

These are common to Man and the lower Animals.

1. AMATIVENESS. Produces the propensity to physical love. It is situated on the lower and posterior portions of the brain, it gives a fulness to the back part of the neck between the ears. Established.

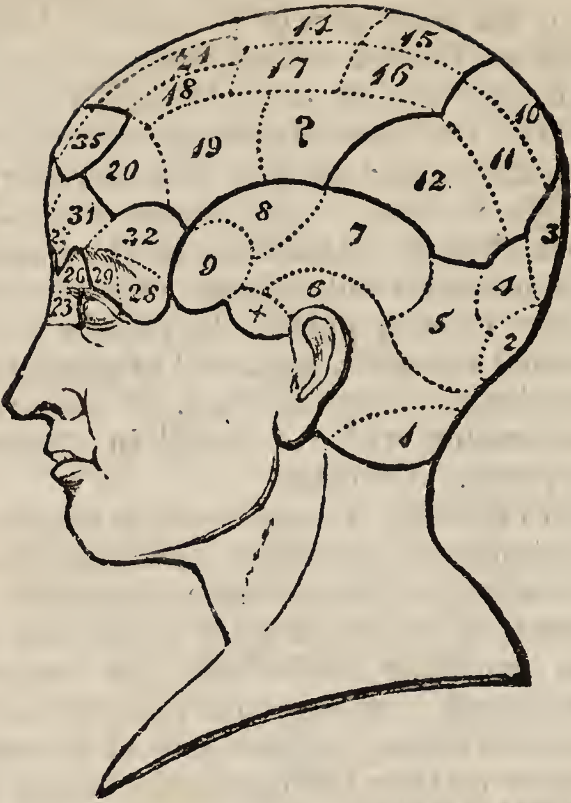
2. PHILOPROGENITIVENESS is the faculty which produces the love towards offspring, and love of young in general, as well as towards weakness and helplessness. It is larger in females than in males, and is the faculty that causes the pains, toils, and mental anxiety of a mother to be a sufferance of love. When in excess it leads to an injurious pampering and indulgence of animals and children. The organ extends

outwards towards the ears of an oval form giving a drooping appearance to the back part of the head. Large in Burns, Hindoos, Negroes, Caribs. Established.

3. INHABITIVENESS or CONCENTRATIVENESS, according to Dr. Gall the propensity to inhabit particular regions or countries, producing a love of home; an instinct in animals, pride in man. Its disease home-sickness and dislike to move abroad. According to Mr. Combe the power of retaining impressions and feelings so as to systematically concentrate them on one point. Its disease a morbid dwelling upon internal thoughts, neglectful of passing events. The organ is immediately above the last, of an oval form, and often in combination with it. Small in American Indians, large in Europeans. Probable.

4. ADHESIVENESS is attachment to friends and society. Its objects, disinterested marriage and friendship. Fondness of boys to animals; in girls, affection for dolls. Its excess is seen in unavailing continued grief at the loss of a friend; attachment to worthless individuals. A man devoid of it may become a hermit. It is generally largest in women. The organ is of an oval shape on each side of Concentrativeness and a little higher up than Philoprogenitiveness. Established.

5. COMBATIVENESS. The disposition felt in man and animals to fight. Active courage, sudden resentment, tendency to oppose. It acts physically and morally and is possessed by all great characters, overcomes difficulties, and opposes oppression. Those who have it feebly are what are termed *soft* people. Its abuse is quarrelsomeness and love of contention. The organ is generally of a round form, but of a shape upwards and downwards when Nos. 3 and 2 are large. Large in king R. Bruce, Ney, Murat, Caribs. Small in Hindoos. Established.



6. DESTRUCTIVENESS. Is the propensity to destroy, whatever may be the object or the mode of effecting it. Thus murder is but one of its directions, which a benevolent and conscientious minded man would not take. In animals they do it for prey, man for food. Destruction is one of the grand and incessant acts of nature in the physical world—man impelled by the feeling aids—while birds, beast and fish, prevent the too great increase of particular species by the propensity of destructiveness. Destructiveness differs from combativeness by not mere conquest but annihilation. Anger rage, satire, cursing, scolding and love of sporting are all manifestions of its existence. A morbid appetite to witness fights, floggings, executions, cruelties; and deliberate murderers possess the faculty in active energy. It is found also to exist largely in the heads of great moral and social reformers. It gives fierceness, passion and energy to man, without it man sinks before the difficulties mental, moral, and physical of the world and human nature. Its abuse is cruelty,

harshness, rage and murder. The organ gives a fulness to the head above the upper part of the ear, sometimes causing it to project. Large in Thurtell, Rush, Nero, Washington, Luther, Mirabeau and Robespierre. Small in Hindoos, Esquimaux. Established.

† ALIMENTATIVENESS, OR GUSTATIVENESS. Is a desire for food — epicurianism, gluttony, drunkenness and appetite. It is situated at the base of the brain and imparts a swell to the head at the temporal arches, it is in front of and a little above the opening of the ear. It must be distinguished from a high cheek bone. Probable.

7. SECRETIVENESS. Leads to concealing emotions, secret in words, thoughts and deeds: but it is the ingredient of prudence. The want of it is a misfortune, as the open and unsuspecting not only injure themselves but disgust by their want of taste and propriety; while a large possession of it leads to cunning, hypocrisy, deceit and lying, and joined with acquisitiveness form the predominant faculties of the swindler and thief. It leads to crime, as the feeling of secrecy lessens the fear of detection. In actors, in humorous people, and in ironical writers, it is a necessary element; it also prevents the abuse of philoprogenitiveness and benevolence. The organ, if 12 be small, gives a roundness to that part of the head; if large it causes a great width. Large in Talleyrand La Fontaine, Bruce, Clara Fisher, American Indians, Hindoos. Established.

8. ACQUISITIVENESS. Is the desire to possess and collect property and things. A fondness for accumulation of things of worth or otherwise. From this passion to possess more than is requisite for the wants and luxuries of man, springs the accumulations of property, the benefit and evil of civilized society. Its disease leads to lamentable cases of unnecessary petty thefts, to avarice and selfishness. The organ is usually large, of an oval appearance and gives a fulness to that part of the head. Large in the Scotch, English, Dutch, and Calmucks, small in the French. Established.

9. CONSTRUCTIVENESS. This leads to a desire to construct works of art, building, manufactures, machinery, &c. Its disease is shown in the coiner, and other deceptive fabricators. The organ is on the temples in front of and below

No. 8. Large in Telford, Brunel, Herchel, Watt, M. Angelo, Haydon, Wilkie, Ancient Greeks. Small in New Hollanders. Established.

SENTIMENTS.

Common to Man and the lower Animals.

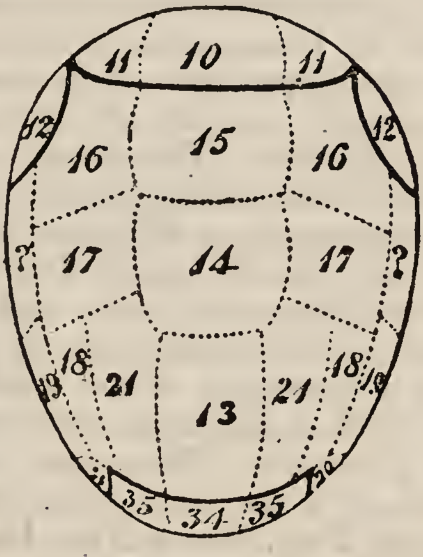
10. SELF-ESTEEM. This faculty leads a man to have a good opinion of himself, and when moderate or influenced by superior sentiments gives dignity to the mind, and renders him incapable of a mean, degrading or vicious act: it generates self-respect, confidence and love of independence. When too large in children it displays pettishness and wilfulness; in mature age it creates pride, arrogance, egotism, envious depreciation of others, repulsiveness, coldness of manner, hauteur, selfishness and domineering. It is often diseased, when it leads to insanity, more commonly in men than women. The organ gives an elevation to that part of the head forming the curve or turn from the back to the top of the head. Large in Englishmen, Dr. Gall, Chinese and Hindoos, small in American Indians. Established.

11. LOVE OF APPROBATION. This sentiment causes us to ask ourselves—" what will the world and people say." When full it makes the person fond of general approbation no matter how acquired, thus it may tend to usefulness, to frivolity, or even to vice. Ambition or vanity may be the aim. As it desires esteem, fame, or glory and loves praise, it depends on the proper views of the person whether it acts for the good or evil of society. It causes people to feed the " fatted sow," to seek the praise of the titled, the wealthy and the powerful, thus it differs in this branch of its efforts from benevolence. The sentiment may actuate the murderer or a patriot, a millioniare or a philanthrophist, the drunkard or the teatotaler, the glutton or the vegetarian; it excites the poet, painter and the statesman, and it is here that wit fells its victim. Its want creates shamefulness. It is most active in women. The organ is of an oval form on each side of self-esteem, when large it gives a squareness to that part of the head. Large in Bruce, Alexander the Great, Charles XII., Clara Fisher, American Indians. Established.

12. CAUTIOUSNESS. This faculty causes men and animals to be circumspect in all that they do. Spurzheim

says " it doubts, says but, and continually exclaims take care !" Its abundance produces doubts, irresolution, wavering, dread, despondence and despair; when moderate it causes prudence; its indulgence gives a feeling of security; its want rashness and precipitancy. When active in children it is a preservative against danger. It assists with the two former organs in giving bashfulness to the character. It is an element of timidity and more developed in females than in males. Its disease creates cowardice, unfounded apprehensions and insanity. The organ occupies a large portion of the brain; it is of elongated form on the upper part of No. 7. Large in the English, Scotch, Peruvians and Germans. Small in the French, Irish, Negroes. Established.

SENTIMENTS PROPER TO MAN.



13. **BENEVOLENCE** is the disposition of the mind which results in compassion, desire for the happiness of others, kindness, mildness, sympathy with the enjoyments of others, and various social virtues, without it neither mercy or compassion would exist. It animates the dog to a preservation of its master, and animals to assist each other. Its abuse is prodigality, easiness of temper and injurious indulgence of the appetites and whims of others. The organ is at the upper and middle part of the forehead which it makes full and round. Large in Dr. Johnson, Burns. Small in Nero and Caribs. Es.

14. VENERATION. Dr. Gall called this the organ of religion. Dr. Spurzheim makes it the cause of veneration or respect in general of divine or human beings, or inanimate objects. Combined with ignorance it leads to superstition and idolatry. While it gives enthusiasm to the antiquary, and filial piety to youth, it predisposes to slavishness, passive obedience, and vacant admiration of rank and power. When it is energetic and self-esteem deficient the person exhibits humility. When small profanity is not positively produced, but humble and reverential feelings do not predominate to overcome the other faculties. When largely existant, it is the enemy to social progress and improvement. In a proper development it leads to veneration for that which is good and great, socially, morally, politically; and reasonable religious adoration. Its deseased state creates senseless adoration of unworthy objects, abject submission to persons in authority, superstitious awe. It is larger in women than men. Its development is on the upper part of the head in the centre of sentimental organs and generally of a round form. Large in Raphael, Negroes, Hindoos. Established.

5. FIRMNESS. Gives constancy and perseverance to the other powers. It conquers the difficulties in science, art, and business. Conjoined with Nos. 10 and 11 it causes an indefatigable pursuit of honour and rank; with 13 philanthropic exertions with 8 and 9 murder and rapine. It produces moral courage and fortitude. When small, men are inconstant in purpose. When deseased, stubbornness and pertinacity in evil are its results. The organ when large gives a towering appearance to the head, being situate at the very summit. Large in Capt. Parry, Ney, Luther, Knox, Jos. Hume, General Jackson, American Indians. Established.

16. CONSCIENTIOUSNESS. This disposes men to look and wish for justice, to respect the rights of others, to love truth, be open to conviction, and a knowledge of right and wrong. Its want causes men to follow the impulses of their worst propensities, and to gain their ends by unworthy means. Its disease is perseverance in evil, arising from ignorance, excess of remorse and self-condemnation. The organ is situated on each side of Firmness. It is large in the German race, moderate in the Anglo-Saxon, and small in the Celtic and savage. Established.

17. HOPE is not mere desire, because what is hoped for is expected to be gratified. It induces men sincerely to believe in the realisation of the desires of their other faculties. It creates a feeling of reliance in the expectation of gaining eternal felicity, a future life of immortality, and is the foundation of faith. Diseased, it builds castles in the air, expects the attainment of every favourite desire, and foolish expectations of happiness not in accordance with reason. Thus credulity is its offspring, in this state mercantile men risk in speculation, and friends are deceived by promises. Joined with No. 8 it forms the gambler. The organ is situated on each side of Veneration. Large in Raphael. Established.

18. WONDER OR MARVELLOUSNESS. It causes a belief in supernatural visions, in miracles, a love of mysterics and incredible tales. It is acceptance of extraordinary relations without the intervention of reason to sift their accordance with truth, science, and philosophy. Joined with veneration and hope it produces religious adoration, with ideality, admiration. The organ is situated on each side of Imitation. Large in Mrs. Radcliffe, Coleridge, Rev. Irving, Earl Grey, Dr. Chalmers, Tasso. Established.

19. IDEALITY. Is the organ of poetry and is exhibited in those possessing poetic feeling. It desires loveliness and perfection and leads to progress by giving out magnificent conceptions of what ought to be attained. It is essential to the poet, painter, and sculptor. When diseased the patient dwells in regions of imagination, neglectful of the imperative everyday duties. The organ is of an elongated form, and situated on the side of the head above the temples. Large in Shakespeare, Milton, Voltaire, Byron, Scott, Shelley, Burns, Wordsworth, Flaxman. Small in Locke, and J. Hume. Established.

? The SUBLIME. Some think this the organ of the sublime, others the love of the past. Obscure, not determined.

The BEAUTIFUL in the Fine Arts is stated by Dr. Vimont to be at the corner of Ideality, above Constructiveness. Not decided.

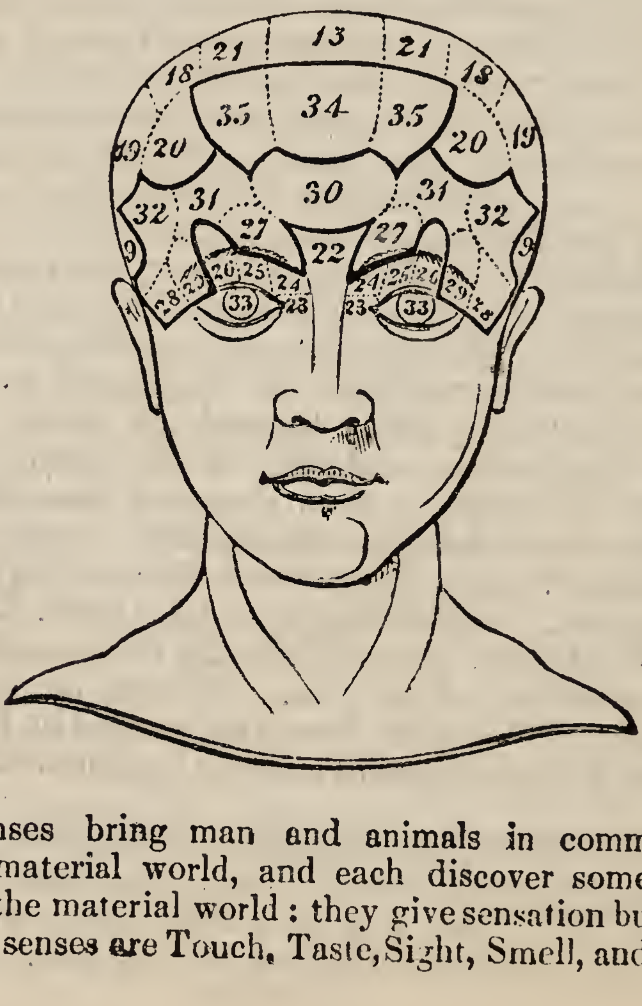
20. WIT—MIRTHFULNESS—is productive of wit, good-humour, caricature, mockery, irony, sarcasms, epigrams, and satires. With Nos. 5 and 6, the result is satire; with No. 7 humour which is increased by Imitation. The organ

is situated on the upper and lateral part of the forehead Large in Curran, Swift, Voltaire, Sterne, and Hogarth. Es.

21. IMITATION produces a fondness for acting and mimicing the voices, manners, gestures, and peculiarities of others, as well as endowing with life the sentiments of poets. Children possess it to a greater extent than adults. When active it is exemplified in conversation. Actors, painters, sculptors, and engravers of distinction, possess it. It is situated on the front of the head, on each side of Benevolence. Large in Matthews, Garrick, Foote, Shakespeare, Sir W. Scott, Raphael. Established.

ORDER II.—INTELLECTUAL FACULTIES.

Genus I. *Faculties which perceive the existence of External Objects.*



The senses bring man and animals in communication with the material world, and each discover some physical quality of the material world: they give sensation but form no ideas. The senses are Touch, Taste, Sight, Smell, and Hearing.

Genus II. *Perceptive Faculties which form Ideas.*

22. INDIVIDUALITY is the faculty which remembers the existence of individual things. As some persons remember trees, houses, faces, roads, animals, &c., most minutely. It is the noun without adjective, the fact without a reasoning application. It is the grand element, when other faculties are joined with it, of genius in many sciences, as it leads to minuteness of observation. When in excess it causes men to personify or ascribe ideas to every thing of which they speak, whether qualities or abstract ideas. With No. 21 and Form it gives truthfulness to the artist ; with Eventuality and Comparison it produces the power of metaphorical writing. The organ gives a heavy fulness and breadth between the eyebrows immediately above the nose. Large in Napoleon, Cuvier, M. Angelo, in the French; Moderate in the English; Small in the Scotch. Established.

23. FORM. Causes great observation in respect to form, recollection of faces, and clothing ideas in imaginative forms, love of portraits, power of likeness taking. The organ is situated between the eye and nose, to which it gives width. Large in Bewick, George III., Townsend, the thief catcher, the Chinese, and French.

24. SIZE, gives the power of estimating size, judging of perspective, an idea of space, dimensions and distance. The organ is situated at the inner corner of the arch of the eyebrow. Large in Newton, Brunel, Small in Ferguson. Probable.

24. WEIGHT OR RESISTANCE. This gives a knowledge of momentum as in quoit playing, or archery ; of weight and resistance by knowing the amount of muscular power to overcome it. This faculty gives power of equilibrium, and is seen in children who walk early. Joined with Nos. 22, 24, and Locality, it perfects the engineer and mechanic. The organ gives a heavy overhanging appearance to the inner side of the eyebrow. Large in Newton, Brunel, Brewster. Probable.

26. COLOURING. This gives the power of judging of the harmonies of colours. Some are fond of colours and excel in producing them, but are devoid of taste. Women

frequently excel as colourists, while they are bad painters. The organ gives on arched appearance to the middle of the eyebrow, sometimes projecting without being arched. Large in the great masters of painting. Established.

Genus III. *Faculties which perceive the relation of External objects.*

27. LOCALITY. This animates the mind of the traveller, geographer, and landscape painter. The faculty by which we remember the places occupied by objects around us. Aids migrating birds; animals and insects, finding their homes; dogs and cats the houses from which they had been transported. The organ is oval above and on each side of the root of the nose. Large in all great voyagers and travellers, good chess players, and geometricians. Established.

28. NUMBER. This gives a talent for computation with facility and accuracy. Dr. Spurzheim limits it to arithmetic, algebra, and logarithms. The organ is situated at the external angle of the eyebrow, between the eye and the temple. Large in Bidder, La Place, Hutton, Wren. Small in Negroes. Established.

29. ORDER. Is a love of arrangement, method and neatness as things are physically related. Cleanliness and completeness belong to it. The organ gives a squareness of form, sometimes a heavy appearance with a roundness to the brow. It is difficult to distinguish. Large in Franklin and Humboldt, necessary to Museum keepers.

30. EVENTUALITY. This is an important organ, it produces attention to all occurrences; to phenomena, events and facts, the principal element of an enquiring mind; a fondness for history, anecdotes, and general information. Individuality is the noun of things, Eventuality the verb. The first recalling things to mind, remembers the details of the things themselves, the second incidents: the one is still life the other active. It is seen prominent in children, and their inquisitiveness results from it. It brings experience to investigate events, and aids in details of business. It is the great element of a good story-teller, and is necessary with No. 22 to the author, barrister, and statesman, as it forms the granary of his mind. It gives aptness of conception and quickness,

of apprehension. When small, general ideas are only retained as the facts requisite to knowledge fade from the mind leaving but slight impress. The organ is in the middle of the forehead, and when large gives peculiar prominence. Large in Pitt, Scott, Fox, Sheridan, Defoe, Swift, and Burke.

31. TIME. Gives the power of perceiving the duration and judgment of intervals accurately—the relation of one object to another in events and music. It is of use in elegant composition. The organ is situated above the middle of the eyebrow.—Very probable.

32. TUNE. From this organ arises the perception of melody and harmony. It gives the power of using sounds in the production of what is called music. It requires the association of the other faculties to form a great musician, as Nos. 31, 19, 7, 21, 9, 23, 25, 22. The organ when full enlarges the lower and lateral part of the forehead, sometimes it has a pyramidal form. Large in all great musicians. Established.

33. LANGUAGE. This is a capacity in remembering artificial signs and words to express thoughts ; fluency in the use of them ; and a power to invent signs and recollect them. A capability of learning languages, of being fluent and abundant in the use of words, of copiousness in expression require to have other faculties as adjuncts. The organ gives prominency the eye ; it is situated at the back part of the orbit. Large Swift, Cobbett, Milton, Humboldt, Voltaire. Established.

GENUS III.—REFLECTIVE FACULTIES.

These faculties give the power of comparison, judgment and scrimination.

34. COMPARISON. The ideas and sensations caused the other faculties are by this compared and their difference, analogy or identity found out. It is the faculty by which men from analogy illustrate, and draw similies. It is large in mathematicians. It creates figurative language, and as it is distinguishable as a national characteristic so will the country's language be idiomatic or poetic. It aids the casuist and is an element of sophistry. The organ is situated in the middle of the upper part of the forehead and gives fulness to that part. Large in Chalmers, Pitt, T. Moore, Burke, J Hume. Established.

35. CAUSALITY. Gives the idea of connection between cause and effect and traces the dependences of phenomena it leads to the processes of induction. With individuality (No. 22) we have objects; with eventuality (No. 30) facts; with comparison (No. 34) analogy, identity, difference and relation of things; the faculty of causality points out their causes—thus there is a combination which completes a philosophic mind. It gives penetration and logical accuracy, necessary to the mathematician and metaphysician. When large its powers so far surpass the vulgar mind that it is not understood, and makes the person retire and be accounted dull. When small the perception of the dependence of one thing on another cannot be grasped in the mind and will represent as wild and imaginary conceptions beyond its comprehension; looking at pernicious, contracted, selfish policy as an emanation of wisdom. The organ is situated on each side of comparison. Large in Bacon, Locke, Franklin, Voltaire, Playfair. Larger in the German and English than in the French. Established.

THE LOVE OF LIFE. This organ is not shown on the diagrams it is supposed to be at the base of the middle lobe of the brain.

CONCLUSION.

The foregoing can only be considered as a brief sketch of the "Science of Phrenology." Those in whom the seed may take root are advised to carefully peruse "A system of Phrenology by George Combe," that they may have reason for the faith within them; there are also many argumentative papers in the Phrenological Journal, which ought to have attention. Those indulging in scepticism towards the science, are earnestly recommended to have recourse to the same works, that reason, not prejudice, may cause their decision on the fallacy or truth of the science of Phrenology.

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